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February 7, 1997

William F. Caton
Acting Secretary
Federal Communications Commission
Washington, D.C. 20554

Re: Ex Parte
CC Docket No. 96-45

Dear Mr. Caton:

Copies of the attached study were provided to Commission staff today at their request. The study was originally filed with MCI's comments in the Fourth Notice of Proposed Rulemaking, Price Cap Performance Review for Local Exchange Carriers, CC Docket No. 94-1, and were incorporated in this docket by reference in MCI's Reply comments filed May 7, 1996.

Respectfully submitted,
MCI TELECOMMUNICATIONS CORP.

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MiCRA

Microeconomic Consulting & Research Associates, Inc.

Depreciation Policy in the Telecommunications Industry:

Implications for Cost Recovery by the Local Exchange Carriers

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Prepared on behalf of MCI Telecommunications Corporation

EXECUTIVE SUMMARY

The regional Bell operating companies (RBOCs) have repeatedly blaimed federal and state regulators for what the Bells believe are unrealistic depreciation rates. The RBOCs claim this has resulted in a large overvaluation of their rate bases and substantial underfunding of their depreciation reserves. These unfounded claims have been cited by the RBOCs as support for the following propositions:

- Competition threatens the RBOCs' ability to recover the embedded costs of providing local basic exchange telephone service. Consequently, regulators must guarantee that the RBOCs will be able to recover these costs in a competitive environment, possibly through levies on competitors.

- Reported profit levels (on their regulatory books) are overstated because depreciation expense is inadequate. As a result, regulatory controls on their rates -- price caps -- should be loosened, allowing the RBOCs to raise rates to recover additional depreciation expenses.

- Measurements of the "universal service" subsidy based on today's economic costs do not properly account for the RBOCs' historic costs of meeting their universal service obligation due to inadequate depreciation in prior years. Therefore, the universal service subsidy must be much larger than indicated by current economic costs.

We find that the RBOCs' claims about the effects of regulatory depreciation practices are simply wrong. In fact, the RBOCs' claims of a large depreciation problem appears to be motivated largely by their desire to enter non-telephony services. Accelerating depreciation today allows earlier replacement of existing telephone plant with plant capable of providing non-telephony services. The existing plant need not be replaced (on an accelerated basis) for efficient provision of basic local telephone services. The RBOCs' proposals for accelerated depreciation would compel users of basic telephone services to subsidize new services that many basic customers may not want.

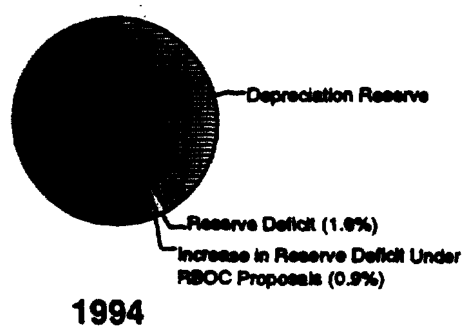
To evaluate the RBOCs' claims, we reviewed comprehensive depreciation studies and analyses filed by the RBOCs' with the FCC. These documents clearly demonstrate the following:

- Changes in FCC depreciation practices during the 1980's have effectively reduced the reserve deficit -- unrecovered depreciation expenses -- from $21 billion in 1983 to over $3 billion in 1994. As a percentage of the gross book value of plant in service (GBV), the reserve deficit has declined from 13% in 1983 to 1.5% in 1994. See Figure 1. Over the same period, depreciation reserves as a percentage of GBV increased from 20% to 41%. Furthermore, the FCC's use of remaining life depreciation rates ensures that the large reserve deficits of the early 1980's cannot recur.

Figure 1. Depreciation Reserve & Reserve Deficit As a Fraction of Gross Book Value: All LECs.

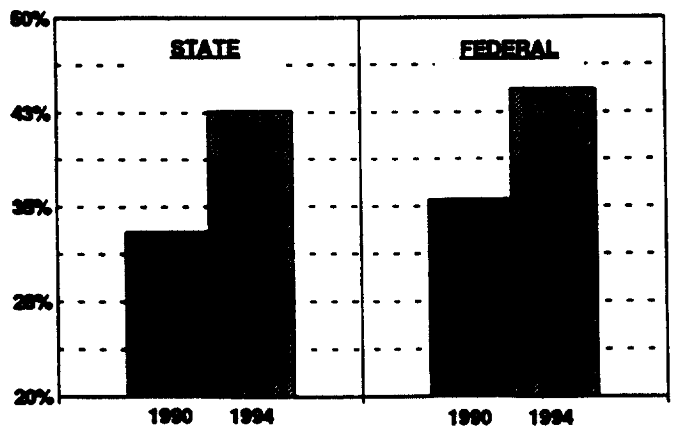
- Even if the reserve deficit is calculated using the RBOCs' depreciation proposals to the FCC (which are based on aggressive deployment of loop facilities designed for video services), it is only slightly higher -- about $5 billion, or less than 2.5% of gross book value. See Figure 2.

Figure 2. Depreciation Reserve & Reserve Deficit as a Fraction of Gross Book Value: RBOCs.



- The RBOCs depreciation position improved markedly in the early 1990's. Depreciation reserves as a fraction of the gross book value of investment (i.e., the book reserve ratio) have increased rapidly at both the federal and state level over the last five years. From 1990 to 1994 the book reserve ratio increased from 35.5% to 44.3% at the federal level, and from 33.0% to 42.6% at the state level for carriers in states subject to the FCC's triennial depreciation review in 1995. These states accounted for more than half of total RBOC invesment. See Figure 3.

Figure 3. RBOC' Depreciation Reserves at State & Federal Level: 1990-1994.*



*Depreciation reserve measured as a percentage of the gross book value of plant investment.

The RBOCs' own estimates of the reserve deficit appear to be higher than those of the FCC in large part because the RBOCs assume a much shorter useful life for subscriber metallic cable. And they do so for reasons unrelated to the provision of basic telephone services.

- For study areas where subscriber metal cable is identified separately in depreciation reports to the FCC, 75-80% of the difference between the RBOCs' and the FCC's estimates of the reserve deficit in 1994 and 1995 stemmed from different assumptions about the useful life of cable.

In 1995, the gap between the FCC and RBOC of the depreciation reserve deficit widened. As long as the RBOCs were limited to telephone service, their requests for depreciation were not very different from the amounts granted by the FCC. The depreciation "problem" claimed by the RBOCs arises from a desire to replace existing plant, especially subscriber metallic cable, for reasons unrelated to the cost-effective provision of basic telephone service.

There are several important policy implications of this analysis of depreciation issues:

- Regulatory depreciation practices have not led to an overvaluation of the RBOCs' assets. Therefore, to the extent competition threatens the RBOCs' ability to recover their embedded costs, depreciation policy is not to blame. Rather, any competitive threat to the RBOCs' profits must be traced to other factors, such as inefficiencies, excess profits, or poor investments in competitive ventures. None of these provide a justification for imposing levies on competitors to keep the RBOCs "whole."

- Current high profit levels of the RBOCs cannot be explained away by "inadequate" depreciation rates. The depreciation expenses introduced in the past fifteen years were sufficient to correct serious underdepreciation. Current depreciation rates are adequate to allow the RBOCs to fully recover the costs of the investments supporting basic local services over the useful life of the assets. Therefore, the RBOCs' reported profits do not present a false picture, and price caps should not be raised to allow them to earn even higher rates of return.

- The LECs do not require a larger subsidy to universal service than is indicated by economic costs studies -- $4 billion -- to make up for "inadequate" depreciation in prior years. The LECs' much higher estimate of the cost of universal service -- $20 billion -- cannot be explained by depreciation issues.

- Encouraging RBOC investments in video dial tone and other non-basic services is not a legitimate reason for increasing depreciation expenses and, therefore, prices of basic services.

Introduction

The regional Bell operating companies (RBOCs) have claimed that past and present depreciation policies imposed by the FCC (and state) regulation have created a large depreciation "problem." In their view, regulated depreciation rates have been inadequate to ensure capital recovery for historical investments made by the RBOCs.[1] As evidence of the inadequacy of current federal and state depreciation practices, they claim that their depreciation reserves have been grossly underfunded. Moreover, they argue that the underfunding of their depreciation reserves is in large part due to regulators imposing excessively long asset lives for their telecommunications plant. The result of these past and current regulatory decisions has been, supposedly, to leave the RBOCs saddled with the need for high current depreciation expenses (to compensate for past underfunding of the depreciation reserve) yet insufficient depreciation reserves.

The research described in this paper disproves the RBOCs' claims. Current depreciation policy at the FCC (and in most states) is structured to prevent the accumulation of underfunded depreciation reserves. Changes in the regulation of depreciation in the early 1980s ordered by the FCC corrected for historical problems with excessively long asset lives and low depreciation rates. Current RBOC complaints about allowable depreciation reserves and current expenses are

[1]For example, see Ameritech's 1994 *Annual Report* at pp. 39-40.

unwarranted in light of the effect of the changes in FCC policies.

MiCRA's research on depreciation is relevant to several current policy questions. The RBOCs (and, more generally, the LECs) have argued in a variety of contexts that they are entitled to recover part of their revenue requirements from local service competitors either through higher interconnection charges or revenue surcharges.[2] One might justify levying surcharges on their competitors, the general body of ratepayers, or the taxpayers, if the RBOCs were saddled with large amounts of underdepreciated plant as a result of past decisions by regulatory agencies to keep depreciation expenses low so as to insure low phone rates. Simply put, MiCRA's research indicates that this is not a material problem.

In addition, depreciation policy is important in implementing and evaluating the performance of price cap regulation. Under the current system of price cap regulation, the FCC evaluates the maximum allowable prices for regulated RBOC services based upon periodic performance reviews of RBOC costs and profits. Depreciation expense is one of the largest components of RBOCs' costs. If depreciation expenses were understated (e.g. through setting excessively low depreciation rates), it could cause RBOC price caps to be set too low. In addition, FCC profit sharing rules require RBOCs to share some or all of their excess profits with ratepayers if the RBOCs' rate of return exceeds certain levels. If depreciation expenses were understated, it could lead to an overstatement of reported earnings and possibly trigger the

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[2]For example, see Bulk Billing: Ameritech, "Supplementary Detail and Support for the Regulatory and Rate Restructuring Proposals of Ameritech's Customers First Plan," Attachment 3. Also see Local Interconnection Charges: "Bell Atlantic-Maryland, "Direct Testimony of John R. Gilbert," Case no. 8584, Phase II, May 5, 1995.

sharing rule.[3] MiCRA's research shows that federal and state depreciation practices have not lead to a significant understatement of depreciation expense under price caps.

MiCRA's research is also directly relevant to policy disagreements over the extent to which RBOCs may be overcharging their captive customers for access, toll, and business services. On the one hand, Hatfield Associates has estimated that only $4 billion in additional revenue (above the current revenues from residential, basic local service) are necessary to provide basic universal service to residential phone customers if LECs used the current, least-cost technology.[4] This $4 billion amount is far below the actual revenues currently collected by the LECs for non-basic services, including usage sensitive access fees for interLATA toll. On the other hand, Strategic Policy Research (SPR), in a study for the United States Telephone Association (USTA), concluded that the margin contribution (the difference between revenues and long-run marginal cost) on non-basic services (switched access services to long-distance carriers and intraLATA message toll) is approximately $20 billion per year.[5] How does one reconcile the $16 billion dollar difference between Strategic Policy Research's estimate of the margin on non-basic services

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[3]As these arguments illustrate, depreciation policy does matter under the current system of price cap regulation. If control over depreciation expenses was left up to the LEC, there is the potential for abuse since the LEC has the incentive to overstate depreciation expenses so as to affect the FCC's performance review and minimize its obligation to ratepayers under the sharing rule.

[4]Hatfield Associates, Inc. "The Cost of Basic Universal Service." July, 1994.

[5]Monson, Calvin and Jeffrey Rohlfs. "The $20 Billion Impact of Local Competition in Telecommunications." Strategic Policy Research. July 16, 1993. Monson and Rohlfs only estimate the marginal contribution from switched access services to long-distance carriers and intraLATA message toll services, but other non-basic service may make a contribution as well.

with Hatfield Associates' estimate that the contribution required from these non-basic services to fund universal service is only $4 billion dollars? One argument the LECs would like regulators to believe is that this difference may be largely attributable to the effects of past regulatory decisions that have left the LECs with high depreciation expenses due to underdepreciation of their telecommunications plant in prior years. MiCRA's study shows that there is little merit to this LEC argument that markups above economic cost must be high because of inappropriate depreciation policies imposed in the past by regulators.

The Simple Economics of Depreciation

Before describing MiCRA's research, it is useful to provide a simple primer on depreciation issues in telecommunications. This primer is intended to illustrate some of the key issues in depreciation policy.[6]

Consider the following simple example. A local telephone company invests $1000 at the end of year 0 on a piece of new capital equipment. At the time the investment is made, it is anticipated by the carrier and the FCC that the equipment will have a useful life of ten years, and a salvage value of zero when it is retired. Therefore, annual straight-line depreciation expense is $100 per year for ten years. What happens if at the end of year 5, it is apparent that the equipment will have a useful life of only 3 more years?

Under the FCC's pre-1981 rules, depreciation expense was set by a whole-life

[6]For a more in-depth analysis of the differences between depreciation systems, see Frank Wolf and W. Chester Fitch, *Depreciation Systems*, (Iowa State University Press: Ames), 1994.

depreciation method. Whole life depreciation expense is equal to the original cost of the equipment divided by the useful life of the equipment.[7] In our example, the whole life depreciation expense in years one through five would be $100 (i.e. $1000 / 10). If the useful life of the equipment fell to 8 years, then the whole life depreciation rate would increase to $125 (i.e. $1000 / 8). See Table 1 below.

Table 1. Illustration of Depreciation Concepts: Whole Life Depreciation

Year	Deprec Expense	Book Deprec Reserve
1	$100	$100
2	$100	$200
3	$100	$300
4	$100	$400
5	$100	$500
6	$125	$625
7	$125	$750
8	$125	$875

The problem with this depreciation method is that there is no mechanism to compensate for underdepreciation (or overdepreciation) of assets in prior years. In our example, actual depreciation expenses in years one through five are $500, but in hindsight total depreciation expenses over that five year period should have been $625. The difference, $125, would not be recovered via depreciation expenses in future years. When the equipment was retired at the end of year 8, the original cost of the equipment ($1,000) would be subtracted from the value of the

[7]Our example is for a single piece of equipment; however, it is easily generalized to a group of equipment. In that case, the average useful life of equipment within the group would be used in determining depreciation expense.

book reserve ($875) , leaving a deficit of $125.[8]

The FCC adopted straight-line remaining life methodology as its depreciation policy in Docket 20188 on November 6, 1980. It did so recognizing that its prior *whole life* depreciation policies -- under which no attempt was made to correct for underdepreciation of assets in prior periods -- created a strong tendency toward insufficient depreciation. Under whole life depreciation, it was always tempting for regulators to simply allow underdepreciation to continue, since to do otherwise would entail increasing current rates or foregoing rate reductions. By the late 1970s, however, it was generally recognized that inadequate depreciation reserves were a serious problem. The FCC adopted a number of measures to resolve this problem. The two most important measures were (1) adopting remaining life depreciation and (2) implementing special amortizations to allow the telephone companies to reduce the depreciation reserve shortfall.[9] As the Commission noted in Simplification of the Depreciation Process (1993), these remedies have been successful to the degree that there is "not a significant overall LEC reserve deficiency at this

[8]The book depreciation reserve is the sum of depreciation expenses from prior years. It is also called the accumulated depreciation reserve.

[9]Remaining life depreciation rates were adopted in Property Depreciation. See Amendment of Part 31 (uniform System of Accounts for Class A and Class B Telephone Companies), 83 FCC 2d 267 (1980) (Property Depreciation), reconsideration, 87 FCC 2d 916 (1981), Supplemental Opinion and Order, 87 FCC 2d 1112 (1981), aff'd sub nom. Southern Bell Telephone and Telegraph Company v. FCC, No. 84-1638 (D.C. Cir. January 17, 1986). The special amortizations were adopted in a number of orders, the most important of these being: Amortization of Depreciation Reserve Imbalances of Local Exchange Carriers, Report and Order, 3 FCC Rcd 984 (1988).

time."[10]

To illustrate how remaining life depreciation methods can correct for past errors in setting depreciation rates, we return to our previous example. See Table 2 below. Suppose that instead of using the whole life method to calculate depreciation, remaining life had been used. What effect would it have on depreciation expense and the book reserve in each year?

Table 2. Illustration of Depreciation Concepts: Remaining Life Depreciation

Year	Deprec Expense	Book Deprec Reserve
1	$100	$100
2	$100	$200
3	$100	$300
4	$100	$400
5	$100	$500
6	$166.66	$666.66
7	$166.66	$833.33
8	$166.66	$1000

In our simple example, where net salvage is zero, remaining life depreciation expense in each year is just the undepreciated portion of original cost (i.e. net book value) spread equally over the remaining life of the equipment.[11] For example, remaining life depreciation expense in

[10]Simplification of the Depreciation Prescription Process, Report and Order, CC Docket 92-296, Adopted September 23, 1993, at 88.

[11]The FCC's remaining life depreciation rate formula also reduces net book value by the value of future net salvage. For example, suppose at the end of the equipment's service life, it could have been sold to a scrap yard for $50. Then, depreciation expense in year one would be ($1000 - $0 - $50) / 10 or $95. More precisely, the FCC's remaining life depreciation rate formula is:

RLDR = [100 - Book Reserve Ratio (%) - Future Net Salvage (%)] / [Ave. Remaining Life].

year one would be equal to ($1000 - $0) / 10 or $100. In year two, it would be ($1000 - $100) / 9 or $100. And so on until the end of year five, when it is discovered that the equipment will only last for three more years. Depreciation expense in year six would increase to ($1000 - $500) / 3 or $166.66, and continue at that level during years seven and eight. The important point to notice is that when the equipment is retired at the end of year eight, the book reserve is equal to $1,000, which is the original cost of the equipment. There is no reserve deficit because the remaining life method increases depreciation expense in years six through eight to compensate for underdepreciation of the equipment in prior years. In this example, remaining life depreciation expense in years six through eight is higher than depreciation expense under the whole life method by $41.66.

We now expand upon our remaining life depreciation example to illustrate several depreciation concepts that will play a major role in our analysis. The *book depreciation reserve* is simply the sum of annual depreciation expenses to date. The *theoretical depreciation reserve* is the sum of depreciation expense that should have been booked to date if the asset is to be fully depreciated when it is retired. The theoretical reserve is based upon current information about useful asset lives and net salvage values. Hence, the theoretical reserve will differ from the book reserve if estimates of useful asset life change after the investment is made.

The difference between the two reserves is the depreciation imbalance. Where that difference (book reserve minus theoretical reserve) is negative, it is referred to as the reserve deficit. Table 3 below illustrates these concepts for the $1000 investment discussed above.

Table 3. Illustration of Depreciation Concepts: Reserve Deficit Under Remaining Life

Year	Deprec Expense	Book Deprec Reserve	Theoretical Deprec Reserve	Reserve Deficit
1	\$100	\$100	\$100	0
2	\$100	\$200	\$200	0
3	\$100	\$300	\$300	0
4	\$100	\$400	\$400	0
5	\$100	\$500	\$625	\$125.00
6	\$166.66	\$666.66	\$750	\$83.34
7	\$166.66	\$833.33	\$875	\$41.67
8	\$166.66	\$1000	\$1000	0

When the shorter useful asset life is recognized at the end of year 5, we now know that the asset is five-eighths "used up." The theoretical reserve is then \$625 (or 5/8 * \$1000), indicating that if the true asset life had been correctly anticipated, \$625 of cumulative depreciation should have been booked by the end of year 5. In fact, only \$500 of depreciation had been booked, so the reserve deficit is \$125. Under remaining life depreciation, the annual depreciation expense is increased to \$166.66 in years 6, 7, and 8 so that when the asset is retired, the reserve deficit is reduced to zero.

The above example was intentionally kept simple. In actual practice, to calculate the theoretical reserve, the FCC uses the following formula, which takes into account changing assumptions about salvage values as well as asset lives:[12]

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[12]Alternatively, one can calculate the theoretical reserve ratio, which is the theoretical reserve as a percentage of original cost. The formula for the theoretical reserve ratio is:

TR% = (100 - FNS%) - ((100 - ANS%)*(ARL/ASL).

$$\text{Theoretical Reserve} = (GBV - FNS) - ((GBV - ANS)*(ARL/ASL)),$$

where

GBV = Gross book value of plant (i.e. original cost)
FNS = Future net salvage
ANS = Average net salvage
ASL = Average service life
ARL = Average remaining life

This formula is identical to the formula used in the above example with the exception that it adjusts for net salvage. The left hand term in the above equation is the net value of future retirements, which are equal to the original cost of the plant (GBV) less the net value of salvage when the plant is retired (FNS). The right hand term is the value of future depreciation accruals (expenses). The difference between future retirements and future accruals is equal to the theoretical reserve; i.e. what the book depreciation reserve should equal if the plant is to be fully depreciated by the end of its useful life. This is a prospective measure because the theoretical reserve looks forward in time to infer how large the current book reserve must be in order to insure that all equipment will be fully depreciated. In practice, this formula is applied to large groups of equipment and plant rather than a single item; hence, service lives and net salvage values are averages over a large number of individual items. Because the salvage value of a given item may change over time (e.g. consider the salvage value of a one year old computer vs. a ten year old computer), the theoretical reserve formula adjusts for differences between average net salvage and future net salvage.

FCC/State Depreciation Process

The FCC has the authority to prescribe depreciation rates for telephone carriers.[13] The process by which these depreciation rates are set involves several steps.[14] Each year approximately one-third of the large local exchange telephone companies submit to the FCC their proposals for new depreciation rates. These proposals are based upon a depreciation study that they file with the proposal. The depreciation study analyzes both recent historical patterns and forecasts of equipment service lives, net salvage, and mortality dispersion patterns. The FCC staff evaluates each carrier's proposal and prepares its own recommendations. The differences between the FCC staff and the carrier are resolved at a three-way meeting. This three-way meeting is a meeting between the FCC staff, the carrier, and the staff from the affected state public service commissions to settle differences in the basic factors that determine depreciation rates.[15] After the three-way meeting discussions are completed, the FCC staff reviews its recommendations and issues a public notice listing its findings. After comments and replies are received back from each participant, an order is drafted for Commission action.

[13]However, since the Louisiana PSC prevailed in its litigation opposing federal preemption of depreciation policy, the state regulatory agencies have been under no obligation to follow the same depreciation rates or policies as the FCC. Louisiana Public Service Commission v. FCC, 106 S. Ct. 1890 (1986).

[14]For a more detailed discussion of the process by which depreciation rates are set, see FCC Depreciation Study Guide for 1995. The above discussion is based in part on FCC, Accounting and Audits Division, "Report on Telephone Industry Depreciation, Tax, and Capital/Expense Policy," April 15, 1987.

[15]In recent years a number of states have stopped attending the three-way meetings. Hence, many of the meetings are now two-way meetings between the FCC staff and the carrier.

One of the reforms resulting from Property Depreciation (1980) is that in evaluating each carrier's proposal, the FCC staff not only evaluates the historical pattern of retirements for a given category of plant, but also evaluates company investment plans, technological developments, and other future-orientated analyses.[16] Thus, if a carrier proposed a dramatic decrease in plant service lives, the FCC would look to either recent patterns of retirements, forecasts of future retirements, or company investment plans for evidence that this change had occurred or was likely to occur in the next several years. Without such evidence, the FCC would be unlikely to support the carrier's proposal.[17]

The FCC requires the RBOCs (and other large LECs) to file estimates of their book depreciation reserves and theoretical depreciation reserves as part of each carrier's triennial depreciation study. In addition, during the last several years these LECs have been required to file an annual estimate of their theoretical reserves by plant account. These filings enable the FCC to monitor the magnitude and direction of the total reserve deficit.

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[16]FCC, Accounting and Audits Division, "Report on Telephone Industry Depreciation, Tax and Capital/Expense Policy," April 15, 1987. Two examples of future-orientated analyses that a carrier can submit with its depreciation study are life cycle and Fisher-Pry Technology substitution theory.

[17]As Ameritech has noted, less than 30% of the time prescribed life projections are within 25% of historical mortality factors (Ameritech Comments, "Simplification of the Depreciation Process," 1993.) Hence, future-oriented analyses appear to play an important role in FCC decisions about service lives.

RBOCs' Reserve Deficit based on FCC Prescribed Life and Salvage Values

MiCRA calculated the total theoretical reserve deficit for the seven RBOCs from the 1994 theoretical reserve study filed by each RBOC with the FCC. The theoretical reserve deficits for the RBOCs are shown in Table 4.[18] The RBOCs theoretical reserve studies provide raw data on service lives, net salvage values, gross book values and depreciation reserves. The service lives and net salvage values in the RBOCs' annual theoretical reserve studies are prescribed by the FCC in its triennial depreciation order for the state operations of each RBOC. FCC methodology is to base the service life and salvage values on either recent experience or investment plans submitted by the carriers.

Table 4 indicates that the total depreciation reserve deficit for the RBOCs as of 1994 was $3.16 billion. This indicates that cumulative historical depreciation of current plant is $3.16 billion less than the amount necessary to assure cost recovery given the most recent experience with historical service lives and salvage values, adjusted, where appropriate, for actual investment plans calling for accelerated retirement of plant. Under FCC depreciation policy, unless special

[18]The columns in Table 4 labeled "RBOCs" and "MiCRA" report, respectively, the RBOCs' calculation of the reserve deficit and MiCRA's calculation of the reserve deficit based on the underlying data. This comparison was done in order to verify that MiCRA and the RBOCs were defining and calculating the reserve deficit in the same way. The only differences in the two calculations should be due to rounding, and that is generally true. However, for eight accounts (out of roughly 1000) the reserve deficit as reported by the RBOC is greatly different than the deficit calculated from the FCC's service life and salvage value assumptions. In those cases, the current analysis assumes the reserve deficit claimed by the RBOCs, pending further inquiry into the discrepancy. The total investment affected is tiny.

TABLE 4

1994 Reserve Deficit In Relation to Net Book Value

(All values in $000's)

	RBOCs	MICRA	Difference Between Two Measures $	%
Gross Book Value of Plant (1/1/94)	200,312,905	200,312,905	0	0.00%
Cummulative Depreciation Reserve	83,608,951	83,608,951	0	0.00%
Net Book Value of Plant (NBV)	**116,703,954**	**116,703,954**	**0**	**0.00%**
Cummulative Depreciation Reserve	83,608,951	83,608,951	0	0.00%
Theoretical Reserve	86,775,286	86,770,432	4,854	0.01%
Reserve Deficit	**(3,166,335)**	**(3,161,482)**	**(4,854)**	**0.15%**
Reserve Deficit as % of NBV	**-2.71%**	**-2.71%**	**-0.00%**	**0.15%**

Sources: 1994 Theoretical Reserve Study filed by each RBOC with FCC.

Notes: MICRA's estimate of the Theoretical Reserve ("TR") is calculated from the investment, service, and salvage values listed in the 1994 TRS. If there was a large discrepancy between MICRA's estimate of the TR and the value listed by the RBOC, the RBOC's value of TR was used instead of the calculated value. This situation occurred in only a handful of cases.

amortization policies for the deficit are adopted, the deficit is eliminated by including it in the depreciation to be recovered over the remaining life of the asset class of which the plant is a part. That is, the depreciation deficit is recovered on a levelized basis over the remaining life of the plant. This procedure, adopted in the early 1980s, creates an automatic adjustment in depreciation whenever either recent experience or a bona fide planned change in investment behavior indicates that more rapid depreciation is required.[19]

The reserve deficit in Table 4 is equal to about 1.6% of the gross book value of plant, and only about 2.7% of net book value. Another way to analyze the relative size of the deficit is to compare the reserve deficit to RBOC revenues in 1994. If the reserve deficit was amortized over five years, it would be equal to approximately 1% of the RBOCs' total revenues in 1994.

The depreciation reserve deficit is now tiny compared to its value in the early 1980s. Table 5 compares the reserve deficit over time both for all LECs reporting to the FCC (the first four columns) and for the RBOCs (the last column in Table 5). For all LECs, the reserve deficit has declined from $21 billion in 1983 to $3.3 billion in 1994. As a percentage of the companies' gross book value the reserve deficit has decreased from 13.1% in 1983 to 1.5% in 1994. At the same time, the book reserve ratio (book reserves as a percentage of gross book value) has

[19]It is important to understand that the existence of a reserve deficit does not imply that the current depreciation expense is too low. In fact, when remaining life depreciation policy is working well, there will be a reserve deficit when service life assumptions are first reduced. That deficit is then eliminated over time with the new, higher depreciation expense over the (now shorter) expected remaining life of the plant.

TABLE 5

Reserve Deficit Over Time

	ALL LECS 1983 (Actual)	ALL LECS 1986 (Actual)	ALL LECS 1990 (Predicted)	ALL LECS 1994 (Actual)	RBOCS 1994 (Actual)
Gross Book Value of Plant ($000's)	160,000,000	180,000,000	NA	228,172,314	200,371,425
Book Reserve Ratio	20%	28%	35%	41%	42%
Reserve Deficit ($000's)	21,000,000	13,000,000	5,000,000	3,314,926	3,163,020
Reserve Deficit as % GBV	13.1%	7.2%	2.0%	1.5%	1.6%

Sources: Values for 1983, 1986, & 1990 are from United Stated States, Federal Communications Commission, Accounting and Audits Division, "Report on Telephone Industry Depreciation, Tax and Capital/Expense Policy," April 15, 1987. Values for 1994 were calculated by MICRA from the 1994 Theoretical Reserve Study submitted by the RBOCs to the FCC.

Notes: The values for RBOCs in 1994 are entirely from the 1994 Theoretical Reserve Studies filed with the FCC by large LECs. In other tables presented in this report, MICRA substituted the values from USWest–Idaho's 1993 Depreciation Study for values from its 1994 Theoretical Reserve Study. The effects of this substitution on the values listed above would be to lower them by the following amounts: GBV of plant, $58.5 mil; the depreciation reserve, $24.1 mil; the theoretical reserve, $20.8 mil; and the reserve deficit, $3.3 mil. The non-RBOCs included in the above totals are GTE, Cinncianti Bell, Citizens Utilities, and Pacific Telecom.

increased from 20% in 1983 to 41% in 1994.[20] As Table 5 also demonstrates, the RBOCs account for $3.2 billion of the $3.3 billion dollar reserve deficit in 1994 or approximately 97% of the total reserve deficit for all LECs (compare the last two columns in Table 5).

Table 4 reports a very small depreciation reserve deficit, and the discussion above described the "auto-pilot" procedures whereby a reserve deficit is automatically worked down by FCC depreciation policy. This evidence is not consistent with the RBOCs' complaints about a large and growing reserve deficit problem. One possibility is that the RBOCs fundamentally disagree with the service life and salvage value assumptions embodied in the FCC's depreciation orders. As noted above, however, this complaint suffers from the fact that FCC policy grants more rapid depreciation based on an actual investment plan, even if the plan calls for far earlier plant retirement than has been true historically.[21]

RBOCs' Reserve Deficit based on RBOCs' Proposed Life and Salvage Values

An alternative to the FCC's measure of the size of the reserve deficit is to calculate a revised deficit based on the RBOCs' own estimates of service lives and salvage values from the most recent depreciation represcription for each of their state operations. Depreciation is represcribed every three years by the FCC. MiCRA obtained the service lives and salvage values

[20]The Commission in Simplification of the Depreciation Prescription Process (1993, p. 8045), noted that the FCC staff had estimated that the reserve ratio should be 42%.

[21]As the Commission pointed out in Simplification of the Depreciation Prescription Process (1993), the FCC gives "...great weight to the companies' future plant investment plans..." in setting depreciation rates (p. 8046).

the RBOCs initially proposed in each depreciation hearing.[22] Table 6 reports the revised depreciation reserve deficit based on the RBOCs' proposals.

Table 6 reports the service life and net salvage values using the RBOCs' triennial depreciation proposals from 1992 to 1994 to calculate the Theoretical Reserve Ratio. This ratio was then applied to the gross book value of plant and book depreciation reserve listed in each RBOC's 1994 Theoretical Reserve Study (TRS) to calculate the dollar amount of the reserve deficit in 1994. Because some plant categories were not comparable between the depreciation proposals and the 1994 TRS, these categories were not included. This led to a very slight reduction of $260 million in the gross book value of plant. To make the comparison as accurate as possible, Table 6 also recalculates the reserve deficit using FCC prescribed service life and salvage values and the same set of plant categories as the RBOC proposals. The reserve deficit increases by less than $2 billion, to $5.04 billion (4.3% of the net book value of plant), if one uses the RBOC proposals instead of the FCC prescribed life and salvage values.

Further analysis is reported in Tables 7 and 8. There, the difference in the reserve deficit based on FCC-prescribed and RBOC-proposed service and salvage assumptions is presented for only the states with depreciation hearings in 1994 (Table 7) and for only the states with depreciation hearings in 1995 (Table 8). The most striking result from these additional two tables is in 1995 when there is a substantial increase in the size of the reserve deficit based on company proposals relative to the size of the reserve deficit based on FCC-prescriptions. The ratio of the

[22]The FCC examines depreciation on a state-by-state basis with roughly 1/3 of the states in any given year taking part in the current represcription. As a result, for most RBOCs not all of their state operations are examined in the same year.